

Claims

1. A promoter DNA recognized by SigA and SigE, which is produced by modifying a nucleotide sequence including a promoter recognized by SigA and bases in the vicinity thereof.

2. The promoter DNA as described in claim 1, which is modified through constructing a consensus sequence recognized by SigE.

3. The promoter DNA as described in claim 2, wherein the consensus sequence recognized by SigE is a nucleotide sequence comprising a -35 region represented by ATAHTT (H denotes A, C, or T) and a -10 region represented by CATAYAHT (Y denotes C or T) which is linked to a site 13 or 14 nucleotides downstream from the -35 region.

4. The promoter DNA as described in any one of claims 1 to 3, wherein the nucleotide sequence including a promoter recognized by SigA and bases in the vicinity thereof comprises a nucleotide sequence ranging from base Nos. 92 to 552 in SEQ ID NO: 1, a nucleotide sequence ranging from base Nos. 133 to 589 in SEQ ID NO: 2, or a nucleotide sequence having a homology of 80% or more to either of these nucleotide sequences and having a consensus sequence of SigA and/or promoter functions equivalent to those of the consensus sequence.

5. The promoter DNA as described in any of claims 1 to 3, wherein the nucleotide sequence including a promoter recognized by SigA and bases in the vicinity thereof

comprises a nucleotide sequence represented by SEQ ID NO: 1, a nucleotide sequence represented by SEQ ID NO: 2, or a nucleotide sequence having a homology of 90% or more to either of these nucleotide sequences and having a consensus sequence recognized by SigA and/or promoter functions equivalent to those of the consensus sequence.

6. The promoter DNA as described in claim 4 or 5, wherein the nucleotide sequence having a promoter recognized by SigA and bases in the vicinity of the promoter has a size of 610 bp or less.

7. A promoter DNA which is produced by ligating two or more promoter DNAs as described in any of claims 1 to 6.

8. An expression vector which has the promoter DNA as described in any one of claims 1 to 7.

9. A recombinant microorganism which has the expression vector as described in claim 8.

10. A recombinant microorganism which has the promoter DNA as described in any one of claims 1 to 7 on the genome.

11. A method for producing a protein or a polypeptide, characterized by culturing the recombinant microorganism as described in claim 9 or 10.

12. The method as described in claim 11, wherein the protein is cellulase or amylase.

13. The method as described in claim 12, wherein the cellulase is an alkaline cellulase which has an amino acid sequence of SEQ ID NO: 4, or a protein which has a homology of 70% or more to the amino acid sequence and alkaline

cellulase activity.

14. The method as described in claim 12, wherein the amylase is an alkaline amylase which has an amino acid sequence of SEQ ID NO: 14, or a protein which has a homology of 70% or more to the amino acid sequence and alkaline amylase activity.

15. A method for constructing a promoter DNA, characterized by modifying a nucleotide sequence having a promoter recognized by SigA and having a nucleotide present in the vicinity of the promoter so as to be recognized by SigA and SigE.